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Creative Problem Solving as a Positive Intervention and Approach to Career Development

Laura DelPrato
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Abstract
Every year, over 19 million college students in the United States face big decisions like choosing a major, securing an internship, and deciding their next steps after graduation (National Center for Education Statistics, 2018). With rapid advancements in the world of work, there are many emerging environmental factors that make these decisions complex and challenging (Callanan, Perri, & Tomkowicz, 2017). This paper explores how positive psychology and creative problem solving research can support students as they make career-related decisions and design their lives. Advancements in positive psychology build a foundation of research that supports work as a pathway to flourishing. Accordingly, research in career development theory investigates approaches that better align with the current student experience and evolving world of work. In particular, research suggests that the Creative Problem Solving process (Creative Education Foundation, 2016) cultivates flourishing and could serve as a positive career development intervention. Future directions for research include conducting empirical studies on the relationship between the Creative Problem Solving process, well-being, and career development.

Keywords
creative problem solving, positive psychology, career development, positive intervention, divergent and convergent thinking, creativity, well-being, flourishing

Disciplines
Academic Advising | Adult and Continuing Education | Counseling | Educational Methods | Psychology | Student Counseling and Personnel Services | Training and Development | Vocational Education

Creative Problem Solving as a Positive Intervention and Approach to Career Development

Laura DelPrato

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A Capstone Project Submitted

In Partial Fulfillment of the Requirements for the Degree of

Master of Applied Positive Psychology

Advisor: Dan Tomasulo

August 1, 2018

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A Vignette of University Student Career Development

Imagine you are returning home for fall break during your second year of undergraduate study. For the most part, you have been enjoying your college experience. You made friends, completed many of your required courses with good grades, and even earned a leadership position in the student-run rock climbing club. Up to this point in your life, your path has been mostly decided for you and your role as a student was well-defined. Then, your family asks if you have chosen a major and if you are considering any internships for the summer. The urgency of decision making overwhelms you.

How can you choose when there are so many different interesting areas of study and how do you get an internship when you do not have any work experience? You enjoyed analyzing different ways to measure success in your business class, but the expressive power of your painting class was fascinating. You also appreciated how you could apply the learnings from your wellness class to enhance your rock-climbing performance. How will you ever find a major or an internship that integrates your diverse interests? And what about the sociology class you are taking next semester, what if you love that class even more? Are there any sociology internships? The excitement and support of being a first-year student has evaporated and you feel yourself deflate as you realize you need to make a decision soon.

When you explore the possibility of majoring in art because you liked your painting class last year, your dad asks, "what would you do with an art major?" Now this conversation is broaching the "what do you want to do with your life?" question and you are not ready to go there. You close your eyes and try to sweep aside the lurking reminder that you also need to pay back your student loans after graduation. How do you make choices about your coursework, major, and life after you earn your degree? You do not want to get stuck in a career that you

hate, but recognize that you need to pay the bills. In addition to these longer-term life questions, you are still trying to figure out what courses to take next semester. It all seems overwhelming.

Introduction

This paper investigates how the Learner's Model of Creative Problem Solving (Creative Education Foundation, 2016) enhances well-being. We will observe the power of the Creative Problem Solving process as a positive intervention by exploring its use within the context of career development. First, we explore the career development process and the challenges it entails, particularly for university students. Second, we leverage insights of positive psychology research to understand flourishing and frame the goals of career development. Third, we explore the Creative Problem Solving process (Creative Education Foundation, 2016) as a positive intervention that supports career development as a pathway towards well-being. This paper culminates with future research recommendations that would empirically test the applications proposed. To appreciate the potential benefits of applying Creative Problem Solving to career development, we must frame and investigate the career development process and career-related challenges that students face.

With over 4.6 million first-year students enrolling in United States' colleges every year (Lerner & Schlechter, 2017) and approximately 16.9 million undergraduates enrolled in 2016 (National Center for Education Statistics, 2018), many are trying to find their path to happiness in a world of possibilities (Arnett, 2000). Career professionals call this process career development, which involves many key decisions related to choosing a major, how to spend summers, and next steps after graduation (Dik et al., 2015; Lent, Brown, & Hackett, 2000). While there are many theories of career development, the process generally involves integrating one's values, interests, and skills with meaningful endeavors across the lifespan and can function

as a series of career-related decisions (Brown, 2002; Krumboltz, 2009; Niles, Yoon, Balm, & Amundson, 2010; Osipow, 1987; Pryor & Bright, 2014; Sullivan & Baruch, 2009). Many universities in the United States have career centers to support students with this process. According to the National Association of Colleges and Employers' (2017a, 2017b) Class of 2017 Survey, 85.6% who had started a job search visited their school's career center either online or in person, at least once in the past academic year. Although students find career centers useful, many still struggle to make career-related decisions (Gati, Krausz, & Osipow, 1996; Lent et al., 2000; Selingo, 2016). Indeed, the career development process is complex and difficult, especially due to the multifaceted nature of career-related challenges, the state of student well-being, and the rapidly evolving world of work (Sauermann, 2005; Danzger, 2018; Callanan, Perri, & Tomkowicz, 2017).

Despite the many challenges of career development, research supports that work is a promising pathway towards well-being. For the purposes of this paper, work will include traditional employment, entrepreneurship, graduate school, volunteer service, the military, and homemaking. In particular, work offers the opportunity to express one's strengths, find meaning, and pursue purpose (Dik & Duffy, 2012). Work also offers the opportunity to enhance engagement and flow (Csikszentmihalyi, 1990). Research supports that work has great potential to contribute to well-being, and workers strive to thrive in their positions (Dik, Byrne, & Steger, 2013; Schwartz, 2015). For example, many employees tend to engage in job crafting, a process of shaping one's work experiences in a way that fosters flourishing (Wrzesniewski & Dutton, 2001). Often, employees craft their jobs in ways that reflect a desire to contribute to a greater good, larger than just the tasks assigned in their job description (Berg, Dutton, & Wrzesniewski, 2013; Schwartz, 2015). Overall, job crafting increases work engagement and job satisfaction,

and negatively correlates with burnout (Tims, Bakker, & Derks, 2013). Therefore, it is important to help students navigate career development because work offers a promising pathway towards well-being. Furthermore, helping students craft their careers would complement the natural process of job crafting that tends to occur upon entering the work world.

Research from positive psychology, the study of positive traits, experiences, and institutions that enhance well-being (Peterson, 2006), has greatly strengthened the body of evidence that links work and flourishing (Baumeister & Vohs, 2002; Luthans & Youssef; 2002). Although career interventions do not tend to appear in traditional positive psychology research, their goals align well with those of positive psychology (Lopez et al., 2006). Recently, many researchers and practitioners have been investigating ways to integrate positive psychology and positive interventions with career theory and career interventions, as well as better understand the active ingredients that make such interventions effective (Bao & Lyubomirsky, 2014; Brooks, 2009; Brooks, 2011; Dik et al., 2015; Panc, 2015; Pawelski, 2009; Robertson, 2018; Sanderson, 2017, Schueller, 2014). An emerging and promising area of interest is the use of creativity as a component of and pathway towards well-being (Forgeard & Eichner, 2014). This paper explores the active ingredients that make Creative Problem Solving effective as a positive intervention. This paper capitalizes the words “creative problem solving” when referring specifically to the Learner’s Model of the Creative Problem Solving process (Creative Education Foundation, 2016). In particular, the Creative Problem Solving process offers a promising approach to guiding students through career development as a pathway to well-being.

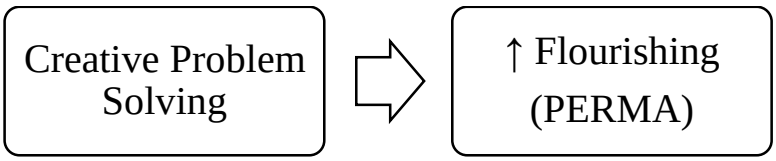


Figure 1. Creative Problem Solving Leads to Flourishing

The Creative Problem Solving process (Creative Education Foundation, 2016) manifests the principles of positive psychology by emphasizing the appreciation and cultivation of the good, while mitigating the bad. It fosters positive, productive, and constructive thought patterns to increase flourishing. It enhances problem solving skills and cultivates the character strengths of creativity, critical thinking, and curiosity (Scott, Leritz, & Mumford, 2004). The process also enhances participant resilience by transforming concerns into questions. When practiced in groups, it improves collaboration and teamwork (Puccio, Firestien, Coyle, & Masucci, 2006; Treffinger, 2007). Furthermore, the results of the process tend to emerge as creative, meaningful solutions to challenges and opportunities.

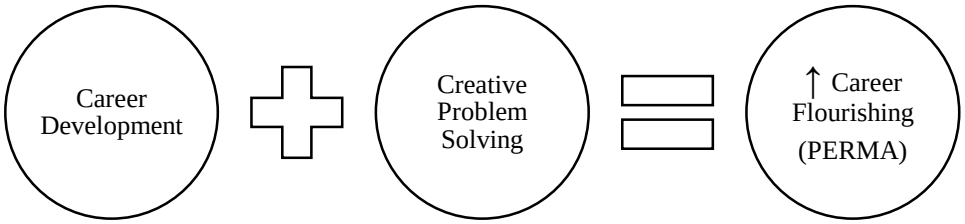


Figure 2. A Creative Problem Solving Approach to Career Development

In the context of career development, Creative Problem Solving can empower students to flourish during and after their university experience. Ultimately, Creative Problem Solving leverages positive methods to move students from a state of chaos and confusion to a state of clarity, coherence, competence, and confidence. Specifically, it transforms career problems into challenges and opportunities. This transformation helps students explore possibilities that align

their skills, interests, and values with meaningful endeavors like a thesis, an internship, or a first job. Creative Problem Solving also enhances students' creative thinking, critical thinking, and problem solving abilities which can benefit both their school work, and their careers. Critical thinking/problem solving and collaboration/teamwork are two of the National Association of Colleges and Employers' (2018) eight career readiness competencies, so Creative Problem Solving training will enhance students' employability. Furthermore, Creative Problem Solving is a flexible, dynamic framework that students can use throughout their lives to solve challenges.

Exploring Career Development for University Students

To guide students through career development in a way that fosters flourishing, we must understand the career development process and the career-related challenges that they face. First, we explore the career development process itself. In particular, the Cognitive Information Processing career theory (Peterson, Sampson, Lenz, & Reardon, 2002) frames career development as a series of ill-defined, complex career problems that involve careful consideration and often lack a single, correct solution (Peterson et al., 2002). Next, we review common career-related challenges that university students face in the career decision-making process. Factors that influence career decision making include: cognitive barriers, sub-optimal wellness, financial and social pressures, accelerated recruiting timelines, and rapid advancements in the world of work (Bates & Bourke, 2016; Bright, Pryor, Wilkenfeld, & Earl, 2005; Callanan et al., 2017; Danzger, 2018; Eisenberg & Ketchen Lipson, 2017; Greenhaus & Callanan, 2012). This exploration helps us understand what students need to navigate career development as a pathway to well-being.

The Career Development Process

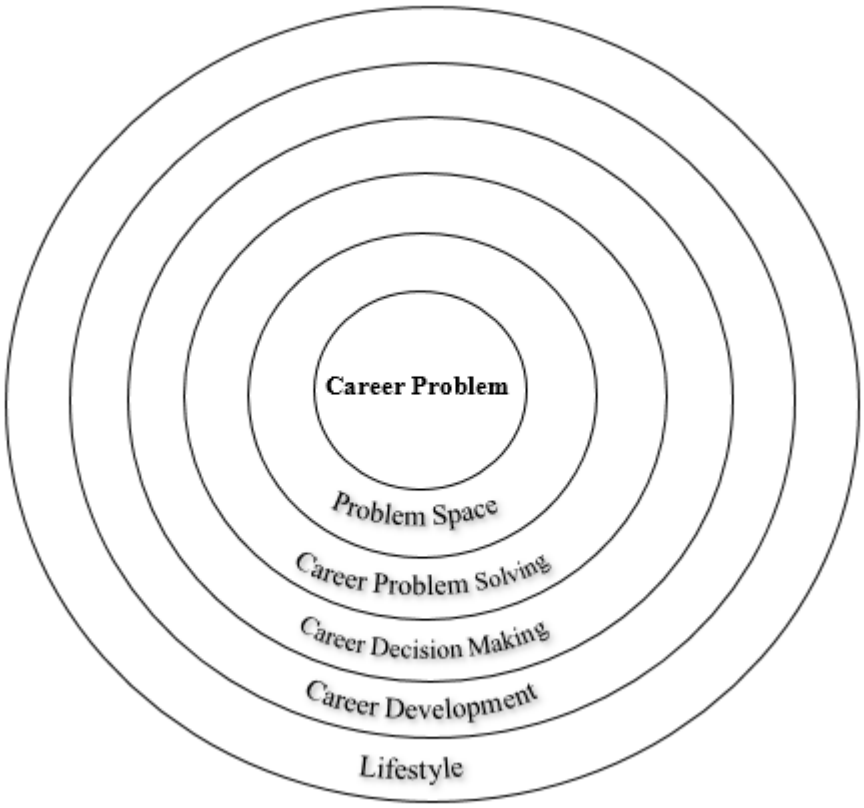


Figure 3. Cognitive Information Processing Approach to Career Development. Illustration created by Laura DelPrato. Adapted from wording by "A Cognitive Information Processing Approach to Career Problem Solving and Decision Making" by G. W. Peterson, J. P. Sampson, J. G. Lenz, & R. C. Reardon, 2002, *Career Choice and Development (4th ed.)*, p. 315.

The Cognitive Information Processing (CIP) approach to career problem solving and decision making is the lens through which this paper interprets and understands the career development process (Peterson, et al., 2002). Originally introduced in the 1970's (Hunt, 1971; Lackman, Lackman, & Butterfield, 1979; Newell & Simon, 1972), CIP aims to help individuals acquire the knowledge, skills, and attitudes that will empower them to make appropriate career decisions throughout their lives (Peterson et al., 2002). Peterson and colleagues (2002), describe this framework as a series of concentric circles with the career problem located at its core and

then the problem space, career problem solving, career decision making, career development, and lifestyle emanate out to the largest circle. Through this lens, career development is the "implementation of a series of career decisions that constitute an integrated career path throughout the lifespan" and lifestyle is the integration of decisions in many areas of life like career, family, and leisure that "result in a guiding purpose, meaning, and direction in one's life" (Peterson et al., 2002, p. 316). CIP encourages practitioners to move individuals towards an orderly state that includes attributes such as "integration, ability-to-plan, hope, self-confidence, and an internal locus of control" (Peterson et al., 2002, p. 315). Thus in the context of university students, CIP theory illustrates how career problems encompass a problem space that overlaps with greater lifestyle concerns, and aims to enhance well-being through career development. This overlap is consistent with other models of career theory such as Krumboltz's Happenstance Learning Theory (2009) and Savickas' Career Construction Theory (2012). Accordingly, career professionals strive to help college students leverage career as a pathway towards holistic well-being as opposed to simply focusing on career as an isolated space (Dik et al., 2015). Overall, this framework of career development emphasizes the complexity of career-related decisions and defines the goal of career development as empowering students to gain the skills, knowledge, and attitudes necessary to make fulfilling career-related decisions.

To help students solve complex career-related problems, CIP theory promotes the discovery of self-knowledge, occupational knowledge, and the development of career decision-making skills (Peterson et al., 2002). Peterson and colleagues (2002) explain the four assumptions of the CIP approach to career development. First, affective and cognitive processes influence career problem solving and decision making. For example, emotions like anxiety could impede individuals' abilities to clearly think through all favorable career opportunities.

Second, career problem solving ability depends upon an individual's ability to access and process relevant knowledge. Individuals must be able to retrieve knowledge about the self and occupational interests, as well as transform knowledge into actionable insights. Third, knowledge structures continually grow and change. Individuals and occupations are continuously changing, so career development therefore involves a continuous process of learning and integrating knowledge towards satisfying career choices. Fourth, the goal of career counseling is to cultivate information processing skills so that individuals can solve career-related problems and navigate career transitions throughout their lives. Thus, successful career interventions should address these four assumptions to help individuals solve career problems, facilitating a path to well-being.

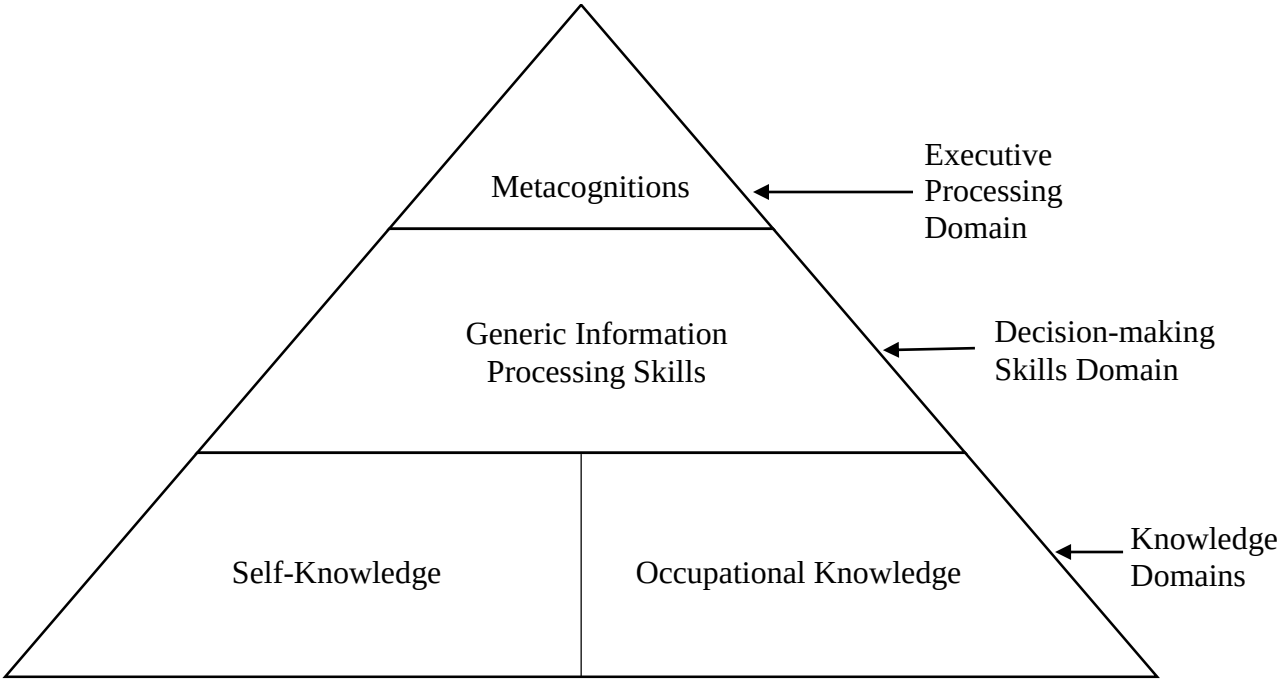


Figure 4. Pyramid of Information Processing Domains. Adapted from "A Cognitive Information Processing Approach to Career Problem Solving and Decision Making" by G. W. Peterson, J. P. Sampson, J. G. Lenz & R. C. Reardon, 2002, *Career Choice and Development (4th ed.)*, p. 320

The CIP theory of career development is helpful because it explores how cognitive and affective processes influence career decision making and provides a model to help students make career-related decisions. To further illustrate how its four assumptions operate, Peterson and colleagues (2002) describe the Pyramid of Information Processing Domains (Figure 4). The pyramid includes a hierarchy of information processing domains where self-knowledge and occupational knowledge form the pyramid base, decision-making skills lay above the base, and the executive processing domain rests at the top. To successfully engage in career development, an individual must develop self-knowledge and occupational knowledge. Then, they must transform that knowledge into career goals and an implementation plan through decision-making skills. Finally, the executive processing domain influences how individuals monitor and regulate

their acquisition of knowledge and perform problem-solving processes. In particular, CIP highlights three executive processing metacognitions: self-talk, self-awareness, and monitoring/controlling. To support students throughout career development, CIP organizes information processing skills into a career decision-making model called the CASVE cycle (Peterson et al., 2002). The CASVE cycle includes five stages of decision-making: communication, analysis, synthesis, valuing, and execution. Career counselors can guide students through this process to support their career decisions. So according to CIP theory, successful career interventions help university students gain the problem-solving skills, knowledge, and attitudes necessary to make fulfilling, career-related decisions.

Although CIP theory aims to enhance student well-being, its application mainly addresses factors that prevent success, rather than those that support it. In other words, CIP theory supports career development through methods that mitigate or eliminate career-related problems. The overall theory frames career problems as the main issue that can impede career development and focuses on cultivating problem-solving skills to overcome those barriers. For example, CIP theory explains that career problems arise when a student identifies a gap between a current state and a desired future state towards which they would like to move (Peterson et al., 2002). While a gap could imply moving a student from a good state to an ideal state, CIP theory tends to emphasize the current state as undesirable. It describes this undesirable current state as encompassing career indecision, which could include depression, anxiety, confusion, and an external locus of control (Peterson et al., 2002). Accordingly, CIP strives to solve career-related problems to move students from a state of indecision towards a state of decidedness. In a way, this model identifies symptoms and causes of career indecision, and then recommends treatment for students that have the most complex problems. While this approach is beneficial because it

helps students overcome career-related problems, the absence of those problems might not necessarily lead to the overall guiding purpose, meaning, and life direction that CIP aspires to cultivate. This model appears to parallel the disease-based paradigm of traditional psychological inquiry. Before we investigate ways to strengthen CIP theory, we appreciate the career-related problems that CIP and other career theories have identified and learn about how CIP recommends we address them.

There are many cognitive barriers that can impede students' ability to make well-informed career choices (Galotti, 1999; Gati et al., 1996; Krumboltz, 2009; Sampson, Peterson, Lenz, Reardon, & Saunders; 1998). For example, a student might think that corporate jobs are all "cut-throat", so they would never be a good fit within the culture there, or that it is impossible to make a living as an artist. They also might think that it is impossible to both find a job they love and earn an adequate salary. Career theories, including CIP, call such incomplete or inaccurate thoughts dysfunctional career beliefs and have developed measures to assess them. These measures include the Career Thoughts Inventory and Career Decision Making Difficulties Questionnaire (Gati & Levin, 2014; Kleiman et al., 2004; Sampson et al., 1998).

Dysfunctional beliefs and cognitive difficulties can impact students' ability to engage in the decision-making process. Sometimes dysfunctional beliefs like not feeling the need or urgency to engage in career exploration, can prevent the start of the process entirely. Gati, Krausz, and Osipow (1996) proposed a taxonomy of cognitive difficulties in career decision making that include many factors. They note that the following difficulties can disrupt the career development process:

- Lack of readiness to engage in the process due to indecisiveness, dysfunctional myths, and an absence of motivation

- Lack of information about the career decision-making process, self, occupations, and ways to obtain information
- Inconsistent information due to unreliable data, internal conflicts, and external conflicts.

Some common dysfunctional beliefs include the misconceptions that career choice is a one-time lifelong commitment and there is only one perfect career fit (Sampson et al., 1998). By contrast, the absence of such difficulties correlates with better integration of knowledge about the self and possible career opportunities (Saunders, Peterson, Sampson, & Reardon; 2000). Thus, dysfunctional beliefs and other cognitive barriers like anxiety can impede career development and career decision making.

CIP theory recommends that career counselors assess students' readiness to engage in career problem solving and decision making to determine career intervention selection and level of service (Peterson et al., 2002). It defines career decision-making readiness as an individual's capability to make career choices that appropriately account for the complexity of factors that influence career development (Peterson et al., 2002). While readiness might seem like a term that encompasses both strengths that empower individuals to engage in the process and barriers that prevent them from engaging, the Career Thoughts Inventory (Kleiman et al., 2004) mainly identifies the presence of barriers. Indeed, students frequently feel anxiety and many external pressures that make career-related decisions difficult (Daniels, Stewart, Stupnisky, Perry, & LoVerso, 2011; Fouad et al., 2006; Gati et al., 1996; O'Donnell, 2017). The Chaos Theory of Careers (Pryor & Bright, 2014) complements the claim that career problems are complex and emphasizes that career development operates as a non-linear, chaotic system in which different environmental factors can have disproportionate effects on outputs. There are many factors that contribute to the chaotic environment such as: cognitive barriers, sub-optimal student wellness, financial and social pressures, accelerated recruiting timelines, and rapid advancements in the

world of work (Bates & Bourke, 2016; Bright, Pryor, Wilkenfeld, & Earl, 2005; Callanan et al., 2017; Danzger, 2018; Eisenberg & Ketchen Lipson, 2017; Greenhaus & Callanan, 2012). Consequently, it is important to identify the complex problems that students face and help them develop problem-solving skills to develop solutions.

CIP encourages practitioners to assess readiness with the Career Thoughts Inventory (Kleiman et al., 2004), a self-report instrument that specifically assesses the level of an individual's dysfunctional thinking (Peterson et al., 2002). The Career Thoughts Inventory has three construct subscales: Decision Making Confusion, Commitment Anxiety, and External Conflict (Peterson et al., 2002). Individuals that score high on the measurement generally have low capability and high complexity of career problems, meaning that they have low career decision-making readiness. Individuals that score low on the measurement generally have high capability and low complexity of career problems, meaning that they have high career decision-making readiness. Considering the cost effectiveness of career services, CIP recommends that practitioners deliver self-help or minimal support to students that have high readiness and high-level support to students who have low readiness (Peterson et al., 2002). This approach is efficient because it prioritizes the students that need the most support, and provides an appropriate level of service to students that have more capability.

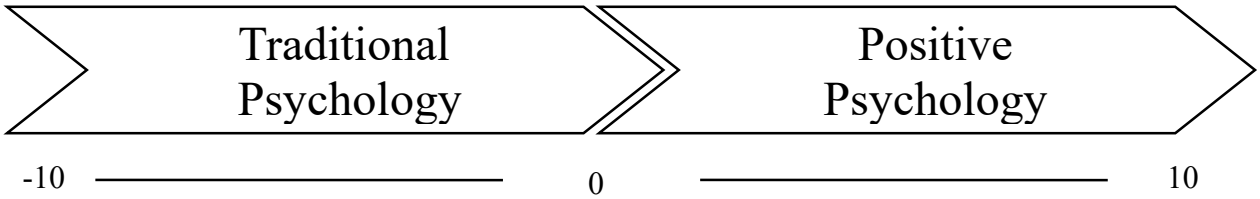
Overall, CIP theory indicates that the goal of career development is to empower students with the knowledge, problem-solving skills, and attitudes that move them from a state of indecision, chaos, and ill-defined career problems to a state of well-defined career plans. We can infer that successful career development interventions should help students gain career-related knowledge, dispel dysfunctional beliefs, develop problem-solving skills, and cultivate attitudes that support fulfilling career-related decisions. The ideal end result of career development aligns

students' interests, skills, and values with meaningful work. CIP theory is very helpful because it provides a clear framework for the cognitive processes involved in career development and career decision making. It acknowledges the influence of emotions on such processes, emphasizes the importance of metacognition, and identifies the barriers impede career decisions. However, CIP theory mostly employs methods that mitigate or eliminate career problems. This paradigm might solve career problems, but might not lead to career flourishing. Thus, there is opportunity to strengthen CIP theory. In the next section, we explore positive psychology research to identify strategies that leverage career development as a pathway towards well-being.

Designing a Positive Intervention for Career Development

Positive Psychology

Positive psychology explores the traits, experiences, and institutions that enhance well-being and investigates "what makes life worth living" (Peterson, 2006, p. 6). While traditional psychology has stressed remedying problems and weaknesses, positive psychology focuses on cultivating strengths and understanding what is good about humanity. To better illustrate positive psychology's perspective, imagine a number line that shows languishing on the left side at negative ten and flourishing on the right side at positive ten. Zero constitutes a neutral point where an individual is neither languishing nor flourishing (Pawelski, 2016a).



Traditional psychology functions like a disease-based model and primarily moves clinical populations at negative numbers towards zero by mitigating or eliminating that which causes them to suffer (Peterson, 2006; Seligman, 2011). However, positive psychology emphasizes that the absence of suffering is not necessarily equal to the presence of flourishing (Seligman, 1999; Seligman, 2011; Seligman, Rashid, & Parks, 2006). Thus, positive psychology primarily cultivates what is going well for people to move them from zero to positive ten (Seligman & Csikszentmihalyi, 2000). From this perspective, positive psychology balances traditional psychology's approach to enhance well-being (Peterson, 2006; Seligman, 1999). Our CIP career theory exploration reflects this proclivity to remedy problems rather than leverage strengths. Thus, there is opportunity to enhance CIP theory's approach to career development and decision-making.

While positive psychology as a formal discipline is relatively young, it builds upon interdisciplinary research and ancient inquiries such as the philosophies of Aristotle, Confucius, and Lao-Tsu (Dahlsgaard, Peterson, & Seligman, 2005). The term "positive psychology" dates back to 1954 when humanistic psychologist Abraham Maslow studied creativity and self-actualization (Maslow, 1954, p. 353). In 1998, Martin Seligman introduced the field of positive psychology during his address as president of the American Psychological Association (Seligman, 1999). Seligman and fellow psychologist Mihaly Csikszentmihalyi are considered co-founders of the field and collaborated to write about the importance and significance of

positive psychology (Seligman & Csikszentmihalyi, 2000). In the context of this paper, positive psychology can frame the way career theory views career development, and provide research-based approaches to enhance well-being. More specifically, it can help students gain career-related knowledge, develop problem-solving skills, dispel dysfunctional beliefs, and gain the attitudes that support fulfilling career-related decisions.

Some of the most well supported research and contributions from positive psychology include constructs and measures of flourishing. One of the most popular constructs for flourishing is Martin Seligman's PERMA: positive emotions, engagement, relationships, meaning, and accomplishment (Seligman, 2011). According to Seligman, the "gold-standard for measuring well-being is flourishing" and the "goal of positive psychology is to increase flourishing" (Seligman, 2011, p.13). Seligman's well-being theory aims to express the elements that contribute to a good life. Each element of PERMA uniquely contributes to well-being, and is defined and measured independently from the other elements. Common measures of flourishing include the PERMA-Profiler (Butler & Kern, 2016) and the Satisfaction with Life Scale (Diener, Inglehart, Tay, 2013). While there are other constructs of well-being, this paper uses PERMA as a definition for flourishing.

In the context of career development, the mitigation of dysfunctional beliefs, anxiety, and career indecision might relieve discomfort throughout the process, but their mitigation alone might not lead to career flourishing. Positive psychology would recommend that students transform career problems into opportunities. This would be a more positive and constructive way to view the gaps that CIP theory aims to fill. Indeed, many traditional-aged college students (18-24 years) are searching for meaning and purpose in their lives (Adams, 2012; Colozzi & Colozzi, 2000; Dik et al., 2013; Steger, Oishi, & Kashdan, 2009). In a study of 112,232 first-

year college students, the Higher Education Research Institute (2004) found that 76% of respondents search for meaning and purpose. Furthermore, the Cooperative Institutional Research Program's 2016 Freshman Survey (Eagan et al., 2017) found that the top two most endorsed reasons for going to college were to get a better job at 84.8% of respondents and to learn about things that interest them at 83.8%. Thus, there is potential to help students frame career-related decisions like choosing a major as opportunities to enhance their well-being, rather than as problems to solve.

While positive psychology emphasizes positive perspectives and methods to increase flourishing, it also acknowledges the importance of mitigating factors that impede flourishing. For example, research supports that human evolution has cultivated a universal negativity bias (Rozin & Royzman, 2001; Vaish, Grossmann, & Woodward, 2008). If our ancestors did not avoid threats and predators, they would not have survived (Baumeister, Bratslavsky, Finkenauer, & Vohs; 2001). Traditional psychology's focus on deficits makes sense given our evolutionary history and pervasive belief that negative experiences hurt us more than positive experiences help us (Baumeister et al., 2001; Fredrickson, 2001; Schwartz, 2004). To overcome such barriers to flourishing, positive psychology investigates ways to productively respond to adversities. Accordingly, positive psychology has accumulated a large body of research on positive interventions that foster resilience (Reivich & Shatté, 2002; Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014; Southwick, Pietrzak, & White, 2011; Wright, Masten & Narayan, 2013). Resilience is the ability to adapt and overcome challenges despite adversity (Masten, 2001). Reivich and Shatté (2002) identify specific skills that people can practice to enhance resilience that include developing awareness of unconscious beliefs, identifying common thinking traps, challenging entrenched beliefs, and gaining new perspectives. Such an

approach to resilience is similar to traditional psychology's view of finding ways to help people mitigate problems. However, it differs slightly because the target audience could be anyone, not just those who suffer psychological illness.

Some resilience research suggests that people can both bounce back and forward from challenges (Prati & Pietrantoni, 2009; Sandberg & Grant, 2017; Southwick et al., 2014; Tedeschi & Calhoun, 2004). In fact, empirical research has found protective factors such as self-regulation, self-efficacy, sense of meaning in life, and positive relationships that facilitate adaptive responses to challenges (Masten, Cutuli, Herbers, & Reed, 2009). Such protective factors like meaning in life and positive relationships are elements of Seligman's (2011) well-being theory. Sarkar and Fletcher (2014) note that resilient high achievers tend to share six characteristics: positive and proactive personality, experience and learning, sense of control, flexibility and adaptability, balance and perspective, and perceived social support. The negativity bias and CIP career theory suggest that students are naturally predisposed to operate within a deficit mindset where they focus their energy on career problems and threats that might aggravate those problems. Resilience research suggests that protective factors complement risk factors and can help students navigate career development as a pathway towards well-being. Furthermore, there is ample opportunity to respond to dysfunctional career beliefs and the negativity bias in a way that helps students bounce forward and clarify their career goals.

Positive Interventions

Another major contribution from the field of positive psychology is the creation, application, and assessment of many positive interventions (Seligman, Steen, Park, & Peterson, 2005; Sin & Lyubomirsky, 2009). In general, positive interventions are research-based activities that aim to enhance well-being. They tend to enhance well-being through methods that cultivate

positive skills, traits, and outcomes. Common examples of positive interventions include expressing gratitude, cultivating an optimistic explanatory style, increasing flow experiences, setting goals, enhancing physical fitness, exercising character strengths, and practicing mindfulness (Niemiec, 2017; Lyubomirsky, 2007; Seligman 2011; Seligman et al., 2005). Pawelski (2009, 2016a, 2016b) further specifies that positive psychological interventions are unique in terms of both their methodological approach and their target audience. As introduced by the number line metaphor earlier, traditional psychological interventions tend to diminish that which impedes flourishing for clinical populations. Complimentary to traditional psychological interventions, positive interventions are deliberate, evidence-based activities that enhance the well-being of clinical populations through positive methods, non-clinical populations through non-positive methods, and non-clinical populations through positive methods (Pawelski, 2016a, 2016b). The paragons of positive interventions are those that serve non-clinical populations through positive methods. In sum, positive interventions are deliberate, evidence-based activities that aim to cultivate flourishing in all populations, especially through positive methods.

Research supports that positive interventions effectively enhance well-being. Sin and Lyubomirsky (2009) conducted a meta-analysis of 51 positive interventions involving 4,266 individuals and their findings supported enhancements in well-being and the alleviation of depressive symptoms. Seligman and colleagues (2005, p.416) reported that two particular positive interventions "—*using signature strengths in a new way* and *three good things*—increased happiness and decreased depressive symptoms for six months". Since many diverse cultures value character strengths, character strengths positive interventions tend to be effective (Niemiec, 2017; Seligman et al., 2005). Furthermore, Bao and Lyubomirsky's (2014) research suggests that the most effective and long-lasting positive interventions buffer against hedonic

adaptation. According to the hedonic adaptation prevention model, the impact of interventions diminishes as positive emotions decrease and aspirations increase (Bao & Lyubomirsky, 2014). To buffer against such diminishing returns, they recommend activities that increase positive emotions and events, such as nurturing relationships and pursuing intrinsically motivated goals. Additionally, increasing the variety of exercises, increasing appreciation for positive results, and remembering the reference point so as to set realistic aspirations will also maximize and extend the benefits of positive interventions (Bao & Lyubomirsky, 2014).

Although the majority of positive psychology interventions are moderately effective, Pawelski (2009) notes that most come in a one-size-fits-all format. For example, the *three good things* exercise involves participants writing down three good things that happened each day for a week and note why they happened (Seligman et al., 2005). This intervention tends to enhance well-being, but research has not investigated the active ingredients that make the intervention effective or how it might be adapted to better match person-activity fit. For instance, does the act of writing or focusing on positive events make it effective? How might performing this intervention in a group impact the results? Accordingly, Pawelski (2009) proposes a methodical approach to identify the active ingredients of positive interventions. Specifically, he recommends that we analyze positive interventions through five elements: activity, active ingredient, target system, target change, and desired outcome. Such a methodical approach would enhance our understanding of current interventions and support the synthesis of new ones.

Thus far, we have explored career development, career decision-making, and positive psychology insights. Our goal is to determine how to guide students through career development as a pathway to well-being during and after their university experience. Overall, positive psychology complements career development. Both positive psychology and career theory aim

to enhance well-being. CIP theory strives to empower students with knowledge, problem-solving skills, and attitudes that help them make fulfilling career decisions throughout their lives. It also provides a career decision-making model that helps students identify and overcome career problems. Positive psychology can strengthen CIP theory's view of career development and provide positive interventions that support its goals. Specifically, CIP theory could transform career problems into opportunities and design a decision-making model that cultivates a positive, productive, and constructive mindset. This model would help CIP theory move students from a state of chaos and confusion to a state of clarity, coherence, confidence, and competence. Creative Problem Solving is a positive intervention that would help students cultivate such a positive, productive, and constructive mindset. In the next section, we explore how the Creative Problem Solving Process functions as a positive intervention and how it enhances career development.

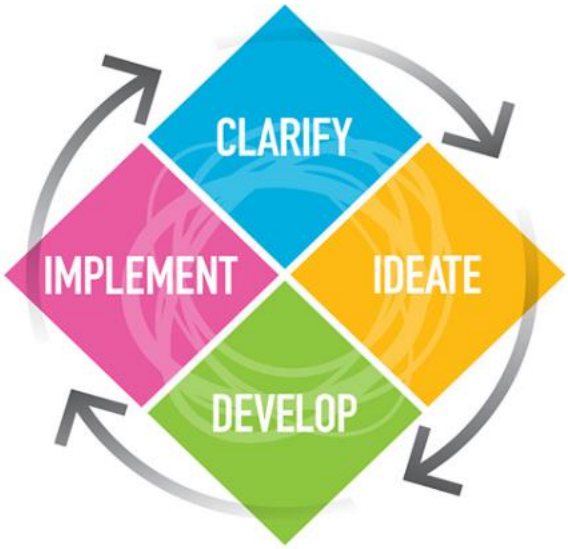
Creative Problem Solving

The Creative Problem Solving process (Creative Education Foundation, 2016) manifests the principles of positive psychology by emphasizing the appreciation and cultivation of the good, while mitigating the bad. It fosters positive, productive, and constructive thought patterns to increase flourishing. It also enhances problem-solving skills and cultivates the character strengths of creativity, critical thinking, and curiosity (Scott et al., 2004). The process enhances participant resilience by transforming concerns into questions. When practiced in groups, it improves collaboration and teamwork (Puccio et al., 2006; Treffinger, 2007). Furthermore, the results of the process tend to emerge as creative, meaningful solutions to challenges and opportunities.

To demonstrate that Creative Problem Solving is a positive intervention, it is important to illustrate how it uses research-based positive methods to cultivate well-being. Creative Problem Solving is a flexible framework that guides the deliberate generation of solutions that solve complex challenges (Creative Education Foundation, 2016; Vernon, Hocking, & Tyler, 2016; Puccio et al., 2006). Based on over 60 years of research, there have been many evolutions of the process since businessman Alex Osborne and professor Sidney Parnes initially investigated ways to enhance creativity in the early 1950s (Creative Education Foundation, 2016; Isaksen & Treffinger, 2004; Osborn, 1952; Osborne, 1953). As mentioned earlier, this paper focuses on the most recent evolution called the Learner's Model of Creative Problem Solving (Creative Education Foundation, 2016). While there are many different approaches to fostering deliberate creativity such as Synectics (Gordon, 1961), TRIZ (Chechurin, 2016), lateral thinking (de Bono, 1992), and Design Thinking (Johansson-Sköldberg, Woodilla, & Cetinkaya, 2013), the Learner's Model of the Creative Problem Solving process (Creative Education Foundation, 2016) has a strong research base that supports its effectiveness (Isaksen & Treffinger, 2004). Creative Problem Solving empowers participants to deliberately strengthen their creative problem solving skills (Scott et al., 2004). The Creative Education Foundation (2016) recommends that Creative Problem Solving is most useful for situations in which the problem owner is interested in the problem, has influence or some decision-making power, and needs new ideas to find a solution.

Research demonstrates that Creative Problem Solving training empowers participants to generate innovative solutions to challenges (Scott et al., 2004; Vernon, Hocking, & Tyler, 2016; Treffinger, Isaksen, & Stead-Dorval, 2006; Puccio et al., 2006; Isaksen & Treffinger, 2004). In a quantitative meta-analysis, researchers reviewed the results of 70 different studies of creativity training programs, and found that well-designed creativity training enhances divergent thinking

(generating many ideas), problem solving (creating novel solutions to unique problems), performance (generating creative products), and positive attitudes and behaviors towards creativity (Scott et al., 2004). The Creative Problem Solving process was one of the most effective approaches to creativity training included in this study. The Creative Studies Project conducted by Parnes and Noller in the 1970s and 1980s (Parnes, 1987; Parnes & Noller, 1972a, 1972b, 1973) found that university students in creativity training courses performed better on tests of cognition, divergent production, and convergent production compared to control groups. They also demonstrated higher levels of coping and problem-solving skills. Next we explore the stages and steps of the process to illustrate how it produces these results.



Stage	Step	Purpose
CLARIFY	Explore the Vision	Identify the goal, wish, or challenge.
	Gather Data	Describe and generate data to enable a clear understanding of the challenge.
	Formulate Challenges	Sharpen awareness of the challenge and create challenge questions that invite solutions.
IDEATE	Explore Ideas	Generate ideas that answer the challenge questions.
DEVELOP	Formulate Solutions	To move from ideas to solutions. Evaluate, strengthen, and select solutions for best "fit."
IMPLEMENT	Formulate a Plan	Explore acceptance and identify resources and actions that will support implementation of the selected solution(s).

Learner's Model based on work of G.J. Puccio, M. Mance, M.C. Murdock, B. Miller, J. Vehar, R. Firestien, S. Thurber, & D. Nielsen (2011)

Figure 5. Learner's Model of the Creative Problem Solving process. Adapted from *Creative problem solving tools & techniques resource guide*, by the Creative Education Foundation, 2016, p. 22.

The Creative Problem Solving process (Creative Education Foundation, 2016) includes four main stages that empower participants to generate innovative solutions to challenges. As depicted in Figure X, the four main stages are:

- Clarify – understand and articulate the problem as a challenge
- Ideate – generate initial ideas that might solve the defined challenge

- Develop – strengthen and transform initial ideas into solutions
- Implement – explore acceptance of solution(s)

The Clarify stage includes three steps that we will explain in detail later. Traditionally, Creative Problem Solving is facilitated in a group setting that includes a problem-owner, a facilitator, and a resource group (Creative Education Foundation, 2016). However, anyone can use the process in individual or group settings to generate solutions to ill-defined problems that would benefit from new ideas. The process is non-linear and cyclical, meaning that depending on the context of a particular problem, the problem-owner may begin at the stage appropriate for their particular context and may repeat any stage as needed. In the context of career development, Creative Problem Solving could be conducted individually by the college student, in a career counseling session, or in a group setting.

Cultivating a Creative Climate

Creative Problem Solving facilitators encourage positive, productive, and constructive thought patterns by cultivating a creative climate at the beginning of sessions. They establish this climate through energizing activities that induce positive emotions and guidelines that promote creative behavior. Some energizing activities that contribute to the creative climate include mistake parties in which participants celebrate failure and risk-taking (Creative Education Foundation, 2016). Facilitators then share the main assumptions of Creative Problem Solving that "everyone is creative" and "creative skills can be learned and enhanced" (Creative Education Foundation, 2016, p.16). Such assumptions encourage positive thinking because they assert that people both have creativity and can cultivate it. The four principles of Creative Problem Solving further support this creative climate and thought patterns:

- Separate and balance divergent and convergent thinking

- Defer judgment
- Ask problems as questions
- Focus on "Yes, and…" thinking and not "No, but…" thinking"

The first two principles of separating and balancing divergent and convergent thinking, and deferring judgment work together to help participants master creative problem solving and establish patterns of productive and constructive thought. Divergent thinking involves the non-judgmental generation of ideas and convergent thinking involves the intentional and deliberate selection of ideas that best address the defined challenge (Treffinger et al., 2006; Puccio et al., 2006; Isaksen & Treffinger, 2004). This dynamic balance and separation of divergent and convergent thinking is integral to the Creative Problem Solving process because it unlocks creative solutions to complex challenges. In fact, each step in the Creative Problem Solving process has a divergent phase and a convergent phase to further enhance participants' creative problem solving abilities.

The next two principles of Creative Problem Solving further establish a creative climate that supports well-being by shifting attention towards productive and constructive thoughts. These principles encourage participants to ask problems as questions and build on ideas. Specifically, facilitators encourage participants to transform problems into challenges and opportunities through invitational language stems like "How might we…", "In what ways might we…", "What might be all the ways to…", and "How to...". For example, instead of saying "I can't be an artist because I won't make enough money," the process asks us to transform this problem into the more approachable and actionable challenge of, "How might I make enough money as an artist?" or "What might be all the ways I can profit as an artist?" Such questions invite curiosity and help participants visualize ideal outcomes. While one could reframe this

problem as “How might I avoid bankruptcy as an artist?”, Creative Problem Solving prefers the frame that promotes the preferred outcome rather than mitigates the dispreferred outcome (Creative Education Foundation, 2016; Pawelski, 2016a, 2016b). Such productive and constructive methods establish thinking patterns that can develop into healthy habits. Many positive interventions leverage habits to focus attention regulation on positive approaches and outcomes (Csikszentmihalyi, 1990; James, 1984). This method of promoting the preferred and leveraging curiosity aligns well with positive psychology’s ultimate emphasis on cultivating the good, rather than mitigating the bad. It also seems to support the insight that the absence of a negative is not necessarily equal to the presence of a positive (Seligman, 1999; Seligman, 2011; Seligman, Rashid, & Parks, 2006).

The *Yes, and… rather than No, but.* principle further contributes to cultivating habits of positive, productive, and constructive thought by emphasizing the generation of ideas, strengthening of ideas, and collaboration with others. These guidelines aim to rewire thought patterns in a way that overcomes common barriers to creativity such as premature judgement and false dichotomies (Davis, 1999). Considering our artist example, this student might think that he can either be an artist or make a lot of money. Without engaging in the Creative Problem Solving process, the student might prematurely conclude that he would never be able to support himself as an artist. When framing the challenge statement, the student could articulate the phrase, “How might I integrate my painting skills into my career?”. This challenge statement invites many diverse solutions, even more so than “how might I make money as a painter?”. Participants collaborating in the process can combine this challenge statement with other frames to help the problem-owner generate a frame that captures the heart of the challenge. During Ideate, a resource group participant might suggest starting an interior design business and

another might build upon that idea to suggest a travelling food truck-like interior design consultancy. Thus, this principle of *Yes, and… rather than No, but* helps participants generate many creative ideas and collaborate with others to build on and improve ideas. Again, this approach focuses attention on constructive behavior that cultivates the good in ideas rather than mitigating or eliminating bad ideas.

The establishment of a creative climate might enhance participants' self-efficacy about creative problem solving skills. Bandura's (1977) theory of self-efficacy suggests that a person's beliefs about his or her ability to perform a particular task mediates behavior for that activity. If a person has high self-efficacy about a task, then they are more likely to perform it. Bandura specifies four information sources that influence self-efficacy: performance accomplishments, vicarious learning or modeling, verbal persuasion and support from others, and emotional arousal (Bandura, 1977). By providing evidence and modeling creative behavior, the Creative Problem Solving facilitator engages participants in vicarious learning and provides verbal persuasion to enhance self-efficacy about creative problem solving skills. Since research supports self-efficacy as a protective factor of resilience (Masten, Cutuli, Herbers, & Reed, 2009), Creative Problem Solving might enhance participant resilience as well.

The Dynamic Balance of Divergent and Convergent Thinking

After introducing the principles of Creative Problem Solving, facilitators further establish the creative climate through divergent and convergent thinking guidelines. Such guidelines encourage metacognition by reminding participants to pay attention to how they are processing information. As a reminder, every step of the Creative Problem Solving Process has a divergent and convergent phase to optimize and harmonize creative and critical thinking in ways that produce creative solutions to challenges. Divergent thinking guidelines encourage participants to

generate as many ideas as possible, defer judgment, seek wild and crazy ideas, and combine and build upon ideas (Creative Education Foundation, 2016). The purpose of divergent thinking is to generate as many ideas so that participants are more likely to find ones that can transform into useful solutions. Convergent thinking guidelines encourage participants to select ideas that align with their goals in an affirmative, constructive style. Convergent thinking guidelines include: "be deliberate," "check your objectives," "improve your ideas," "be affirmative," and "consider novelty" (Creative Education Foundation, 2016, p. 19). This dynamic balance of creative and critical thinking reinforces positive, productive, and constructive thought patterns and behaviors. These methods also overlap with common positive psychology interventions of character strengths and appreciative inquiry.

Although the Creative Problem Solving process cultivates creativity and critical thinking to generate innovative solutions, positive psychology research would suggest that such skills are actually character strengths that serve both as aspects of and pathways towards well-being (Niemiec, 2017). In general, multiple studies have correlated character strengths with life satisfaction and one can think of the character strengths as 24 unique pathways to well-being (Niemiec, 2017; Niemiec, 2013; Peterson & Seligman, 2004). The use of character strengths at work is correlated with greater well-being, vocational satisfaction, and meaning (Littman-Ovadia & Davidovitch, 2010; Littman-Ovadia & Steger, 2010; Niemiec, 2013). One study found that workers who reported a high awareness of strengths had nine times better odds of flourishing and those that reported high strengths use had eighteen times better odds of flourishing (Hone, Jarden, Duncan, & Schofield, 2015). Thus, the cultivation of character strengths alone suggests that Creative Problem Solving might lead to well-being. It would be beneficial to conduct

studies that assess how Creative Problem Solving contributes to well-being as measured by PERMA.

Creative Problem Solving's methods also contain elements of Appreciative Inquiry (Cooperrider, Whitney, & Stavros, 2008). Appreciative Inquiry is a change management model that encourages curiosity about what gives life to people, organizations, and institutions. (Cooperrider et al., 2008). It emphasizes asking questions about strengths and how to further cultivate them in an effort to enhance well-being. It also asserts through the principle of simultaneity, that the framing of a question has the power to influence the answers (Cooperrider et al., 2008; Ludema, Cooperrider, & Barrett, 2006). This approach differs from most traditional problem solving processes that operate within deficit-based perspectives. Appreciative Inquiry suggests that the study of problems leads to more problems, while the study of strengths leads to more strengths. Zandee and Cooperrider (2008) elaborate on this further with the concept that words create worlds. This suggests that both language and the frame of inquiry can influence findings. Creative Problem Solving similarly leverages similarly leverages problem framing and the intentional use of language. For instance, instead of eliminating bad ideas or ineffective solutions, Creative Problem Solving asks participants to appreciate what is good about ideas and strengthen them (Creative Education Foundation, 2016; Isaksen & Treffinger, 1985; 2004). The "Be Affirmative" guideline directly emphasizes this appreciative approach. It also encourages curiosity and positive questions that reveal the heart of challenges and their ideal outcomes. Through this appreciative, inquisitive process, Creative Problem Solving participants transform problems into opportunities, concerns into questions, and ideas into solutions.

Applying Creative Problem Solving to Career Development

Creative Problem Solving as a positive career development intervention can empower students to flourish during and after their university experience. Ultimately, it brings students from a state of chaos to a state of clarity by exploring possibilities that align their skills, interests, and values with meaningful endeavors like a thesis, an internship, or a first job. It enhances their creative thinking, critical thinking, and problem solving abilities that can benefit both their school work, and their careers. Critical thinking/problem solving and collaboration/teamwork are two of the National Association of Colleges and Employers' (2018) eight career readiness competencies, so Creative Problem Solving training will enhance students' employability. Furthermore, Creative Problem Solving is a flexible, dynamic framework that students can use throughout their careers to solve challenges. The Creative Problem Solving Process cultivates positive, productive, and constructive thought patterns and supports career development.

After setting a creative climate and reviewing divergent and convergent thinking guidelines, facilitators guide participants through the stages of Creative Problem Solving. We begin at Clarify to illustrate the entire process, although one can begin at any part of the process as needed (Isakesen & Treffinger, 1985, 2004). In terms of career development, if a student came in for a counseling session and had a clearly articulated challenge of trying to integrate painting skills into a career, we might begin at ideate. Similarly, if a student was preparing to do an internship across the country for the summer and already accepted an offer, we might begin at develop or implement.

Clarify. Clarify transforms problems into well-defined challenges and opportunities. In terms of career development, this stage empowers students to frame challenges in a way that emphasizes what is most meaningful to them. Clarify has three sub-steps including: Explore the

Vision, Gather Data, and Formulate the Challenge (Creative Education Foundation, 2016). The goal of clarify is to articulate the problem in a way that invites solutions. At the end of this phase, participants can articulate a "challenge statement" that begins with an invitational language stem.

To illustrate the Clarify stage of Creative Problem Solving, we explore how it approaches a fictitious career challenge. Recall the introductory vignette that describes a student's career development experience during the second year of undergraduate study at a four-year university. We will call this student Claire. Claire loves rock climbing, and finds her business, wellness, and painting classes particularly interesting. Claire needs to declare her major by the end of her next semester, but she is struggling because she has many diverse interests. Claire is a great "problem-owner" for Clarify because she has interest in choosing a major, she has the ability to choose a major, she needs new ideas to help her solve the problem. To illustrate the full collaborative power of the Creative Problem Solving process, we will demonstrate the steps in a group setting. Claire has called upon some of her friends to help her choose a major. Her one friend, Ruth, is particularly interested in helping people solve challenges creatively and volunteered to help facilitate the process so that Claire could focus on the content.

The group begins with the first step of Clarify: Explore the Vision. The goal of this step is to identify the goal, wish, or challenge that Claire would like to investigate further. First, Ruth reminds Claire of the divergent thinking guidelines, particularly the one to defer judgement, and then asks her to generate several wish statements that begin with the phrases "I wish…" or "It would be great if…". Claire generates several statements and then Ruth reminds her of the convergent thinking guidelines. She then asks Claire to identify the wish statement that she has interest in, influence about, and needs new ideas. Since Claire generates multiple wish

statements that meet those three criteria, Ruth encourages her to select the one most closely articulates what she hopes to achieve. Claire selects the wish statement that reads, “I wish I could find a major that I love and that prepares me to pay my student loans”.

As we can see, the Explore the Vision step begins to transform problems into opportunities. Like positive interventions, this step focuses attention on promoting the positive rather than mitigating or eliminating the negative (Pawelski, 2016a, 2016b). Claire must visualize what should would like to cultivate or achieve, not what she would like to avoid. It also emphasizes meaning for Claire because the convergent phase requires her to reflect on her values to select the goal or wish that she would like to prioritize. She selects the wish that is most meaningful for her. This process lays the groundwork to help Claire establish positive thinking patterns.

The next step in the Creative Problem Solving process is Gather Data. Ruth asks Claire to provide the group of friends with a brief history of the situation including what academic subjects she has liked so far. Ruth recounts that she loved her painting, business, and wellness classes and that she has taken a leadership position in the student-run rock-climbing club at their university. She would like to take more painting and business classes, but appreciated that her wellness class enhanced her ability to perform difficult climbs. She is worried that she won’t be able to pay off her student loans if she doesn’t pick a major that prepares her for a good job. Ruth asks the resource group to add any additional information that would be helpful for Claire’s challenge. Her friends noted that there is a new create your own major program at their university and a living in learning program that involves rock climbing. They also included a list of all of the established majors at their university. One of Claire’s friends who had already chosen her major and completed an internship emphasized the insight that your major doesn’t

necessarily equal your career, but you can learn transferable skills from coursework that will help you succeed in the world of work. Ruth then asks Claire what the most important piece of information she would like the resource group to consider when moving forward into the Formulate the Challenge step. Claire replies that she likes the create your own major program and wants to focus on pursuing her interests.

Now that they have gathered relevant data, the third step in Creative Problem Solving is to Formulate the Challenge. This is the step that emphasizes framing the challenge in a way that is most likely to help spark useful ideas that could improve the situation. Again, Ruth invites the group, including Claire, to diverge on possible challenge statements that begin with invitational language stems. The group generates over 30 different ways to frame the challenge including, "How might Claire eliminate her least preferred academic subjects?", "How might Claire choose a major?", "How might Claire pursue her interests in a sustainable way?", "How might Claire alleviate anxiety around choosing a major?", "How might Claire learn about different major options?", and "How might Claire design her own major?" As we can see, there are many ways to frame this challenge, and some may be more helpful than others. Claire liked the design your own major challenge statement because it gave her hope. Maybe she could combine all of her interests into a unique major that would set her up with a unique skillset in the workforce! Additionally, the challenge statement that emphasized her ability to pursue her interests sparked the insight that she could still pursue all of her interests without needing to include them in her major. She ultimately converged by selecting the "How might I design my own major?" challenge statement because she felt it gave her the most flexibility to study her interests.

As we have seen, the Formulate the Challenge step can unlock new ways of viewing a career development problem like choosing a major. By considering many different ways of

framing a problem and transforming it into an opportunity or challenge rather than a problem, students can unlock new insights and underlying assumptions or beliefs that they did not realize they had. For example, in this situation, Claire realized that she was stressed about her major because she felt it was the sole determinant of her career success. She was so focused on her student loans, that she did not realize she might be able to create her own course of study, or that she could potentially still pursue all of her interests even if they were not all included in her major. She had been stuck in the perspective that she had to match her interests to an existing major, and the new perspectives helped her consider new possibilities.

This process of questioning hidden assumptions and unproductive thought patterns is very similar to cognitive behavioral therapy (Beck, 1997; Butler, Chapman, Forman, & Beck, 2006; Ellis, 1962) and positive interventions that aim to increase resilience (Reivich & Shatté, 2002). Cognitive behavioral therapy often involves an individual identifying an activating event, articulates their thoughts about that event, and noticing how those thoughts lead to particular behaviors or responses to the situation. In this case, Claire noticed that the activating event was her father asking her what she was going to major in and she froze when he asked what she would do with an art major. From his response, she jumped to the conclusion that major must equal career and that she needed to find a major that would have better job prospects. These thoughts led to anxiety, frustration, and her being stuck in the unproductive cycle of trying to match her interests to a major and that major to a career. Going through the Clarify phase of the Creative Problem Solving process helped Claire gather data that both helped her question her underlying assumption and avoid thinking traps by transforming them into more productive questions. In a way, Clarify stealthily avoids thinking traps and inaccurate assumptions in a way that focuses Claire attention on productive and constructive challenges.

Ideate. The next step in the Creative Problem Solving process is Ideate. Ideate involves generating as many ideas as possible to approach the challenge. As a reminder, the divergent thinking guidelines are: go for quantity, defer judgment, seek wild and crazy ideas, and combine and build (Creative Education Foundation, 2016). At the end of Ideate, there should be a main idea that will then be transformed into a solution in the Develop stage. As research supports that positive emotions help people broaden and build (Fredrickson, 2001), Ruth leads the group in a quick, fun energizer before beginning the divergent phase of Ideate. Then, the group uses the creative tool of brainstorming (Creative Education Foundation, 2016) to generate as many ideas as possible that address how Claire might design her major. Some practical approaches arise such as, making a list of all of Claire's interests, exploring the career center's resources on transferable skills, and finding an academic advisor who has helped students design their own major before. Then some more creative ideas emerge such as, start a nutrition club, become a rock climbing trainer and dietician, and summarize your academic study with a gallery exhibition of paintings that illustrate the business of rock climbing. Then, some crazy ideas arise such as go on a cross-country rock climbing road trip during winter break to self-reflect. Ruth then reminds the group of the convergent guidelines and has everyone vote for the idea they think would be most helpful to Claire based on the key data she provided during the Clarify stage, while still considering novelty. After seeing the group's selection, Claire decided to find an academic advisor so that she could better understand the process of designing a major. At this point, the group decided to pause in the Creative Problem Solving process because Claire needed to gather more data from the academic advisor before proceeding. She made a goal to reach out to an advisor by the end of next week and then check in with one of her group mates at that point to help hold herself accountable.

Ideate is probably what most people visualize when they think of creative problem solving. As we saw, it involves generating as many ideas as possible at a rapid pace and typically uses different variations of brainstorming. This process of deferring judgment and accepting all ideas helps participants unlock creative solutions that normal cognition would not achieve. It also continues to emphasize the constructive, productive, and affirmative approach of the overall Creative Problem Solving process. For instance, Ruth reminded Claire to consider novelty when selecting the idea she wanted to pursue. Additionally, participants were building on ideas and working together, enhancing collaboration.

Returning to the Creative Problem Solving process, Claire briefed her team on what she learned from her new academic advisor. She learned that to design a major, she would need to compile ten courses that she would take over the next two years in college and get it approved by the interdisciplinary studies chairperson. She said she felt better, but was worried that she might not build all of the skill sets she needs to be successful after graduation if she chooses this route. Ruth jumped in and said that's an excellent concern, how might you phrase it as a question? This is an excellent transition to begin the Develop stage of the Creative Problem Solving process.

Develop. The Develop stage strengthens and improves initial ideas so that they better solve the challenge. In the context of career development, this involves strengthening solutions that best align students' interests, skills, and values with meaningful work. They group paused after Claire articulated her favorite idea: "What I see myself doing is getting an academic advisor who can help me design my own major". Since she obtained an advisor, they adjusted the phrase as "What I see myself doing is designing my own major". Ruth began with one of the most common tools for develop called PPCO or POINT (Creative Education Foundation, 2016).

PPCO stands for pluses, potentials, concerns, and overcoming concerns and POINT means pluses, opportunities, issues, and new thinking (Creative Education Foundation, 2016). Ruth asked the group to diverge on the pluses (benefits) of Claire designing her own major. Participants noted pluses such as, it would allow Claire to study areas that engage and interest her, it would give her a unique major, and it would allow her to meet colleagues and professors across diverse disciplines who share a similar interest with her. Then the group diverged on potentials. They explored how designing a unique major might benefit Claire in the future. They noted that it might distinguish her from other students to help her secure an internship or job of interest after graduation. It might lead to new academic research that could earn her a scholarship or help her get into graduate school. It might lead to her finding a professor or mentor who shares her interests. Ruth then asked Claire to note which pluses and potentials she found the most energizing. Claire had not considered she might meet new friends with similar interests from her major, so she selected that one. The potential that most excited her was establishing a unique skill set that would attract employers, especially since those skills would relate to her favorite academic interests!

Next, Ruth instructed the group to list concerns about this idea in the form of questions. They generated questions such as “How might Claire design a major that interests employers?”, “How might Claire include her most passionate interests in her unique major?”, and “How might Claire demonstrate that she achieved a high level of academic rigor in this innovative approach?” Ruth asked Claire which concern she would like to overcome the most and Claire said she would like to consider how she might design a major that interests employers. The group then diverged again on ways to design a major of Claire’s academic interests that would attract employers. At the end of this diverge, Ruth reminded the group of the convergent thinking guidelines,

especially to consider novelty, and had everyone vote on how Claire might strengthen her initial idea of designing her own major. At this point, Claire checked her objectives and wanted to make sure that she could transform her academic interests into transferable skills that would help her pay off her student loans after graduation. She realized that a traditional business major would definitely attract employers, and she could apply business to all of her other interests like painting, rock climbing, and even wellness. Furthermore, she learned about an entrepreneurship minor from her new academic advisor, who also happened to be in charge of the entrepreneurship curriculum. Combining all of these thoughts, Claire declared, "Now what I see myself doing is majoring in business, minoring in entrepreneurship, and designing a senior thesis project that demonstrates the transferable skills I have developed in my favorite courses".

The Develop stage of the Creative Problem Solving process epitomizes the affirmative, constructive mindset that it establishes. Like positive psychology, the Develop stage encourages participants to acknowledge what is good about an idea and how they can improve it. Recalling the methods of positive interventions (Pawelski, 2016a, 2016b) this involves promoting the preferred. It also reflects the principles and tools of Appreciative Inquiry (Cooperrider et al., 2008). Furthermore, as positive psychology does not ignore the negatives, the Creative Problem Solving process acknowledges concerns in an affirmative, resilient, and productive way that encourages solutions.

Develop also reflects the positive interventions of mental contrasting and setting implementation intentions (Duckworth, Grant, Loew, Oettingen, & Gollwitzer, 2011; Oettingen, 2015). Oettingen (2015) emphasizes that positive thinking and the visualization of goals alone is not sufficient to help you achieve those goals. By mental contrasting, one must visualize both the ideal result and obstacles that might prevent its actualization. Then, Oettingen (2015)

recommends that you set implementation intentions in the form of "If obstacle X occurs, then I will (action to overcome obstacle)". PPCO complements this process because it strengthens solutions with ways to overcome obstacles and frames those concerns in a positive way.

Implement. The final stage of the Creative Problem Solving process is Implement, which involves finding ways to increase the probability of a successful implementation. Implement encourages participants to explore acceptance of the solution and consider ways to increase the likelihood that key stakeholders will support its success. Ruth told the group that they would use two main tools in the implement stage: Assistors & Resistors and Action Plan (Creative Education Foundation, 2016). For Assistors & Resistors, Ruth instructed the group to diverge on all of the resources including people that would help Claire implement her solution. The group noted that the following resources would help Claire: Claire, Claire's advisor, Claire's friends, the career center, Claire's rock-climbing club, the entrepreneurship club, Claire's family, the business chair, etc. Then they diverged on resistors or entities that might impede Claire's progress. They generated resistors such as time, class availability, life distractions, rock climbing injuries, and Claire's interest in many diverse subjects. Then Ruth instructed the group to brainstorm ways to transform resistors into assistors. They phrased all of the resistors into questions with positive language stems and found solutions. For example, Claire's interest in diverse subjects could help her design a unique thesis, so she could find a thesis advisor who shares diverse interests as well. Next, Ruth began the Action Plan tool (Creative Education Foundation, 2016). The team diverged on all of the next steps that Claire would need to take and then converged by organizing them in a chart of short-term, mid-term, and long-term goals with due dates. Each action item had an accountability buddy assigned who would check in with

Claire to help her stay on track. Additionally, each action item had a celebration date and activity so that Claire would remember to celebrate her progress.

Implement contributes to career development and well-being by helping participants realize their creative solutions. The action-orientation of Implement aligns well with the achievement element in Seligman's (2011) well-being theory. It helps participants move forward with a clear direction in small, tangible steps and continues to emphasize collaboration. It also promotes positive relationships by assigning accountability buddies and scheduling celebrations to appreciate progress.

Overall, Creative Problem Solving encompasses a powerful collection of positive interventions that can empower students to leverage career development as a pathway to well-being. It cultivates positive, productive, and constructive thought patterns that can form healthy habits. It builds character strengths of creativity, critical thinking, and curiosity, and applies them to produce solutions to meaningful challenges. When practiced in groups, it fosters collaboration and teamwork. Furthermore, the results of the process tend to emerge as creative, meaningful solutions to challenges and opportunities.

In the context of career development, Creative Problem Solving can help students flourish during and after their university experience. Specifically, it empowers them to explore possibilities that align their skills, interests, and values with meaningful endeavors like a thesis, an internship, or a first job. It enhances their creative thinking, critical thinking, and problem solving skills that can benefit their school and work careers. Critical thinking/problem solving and collaboration/teamwork are two of the National Association of Colleges and Employer's eight career readiness competencies, so Creative Problem Solving training will enhance their

employability. Furthermore, Creative Problem Solving is a flexible, dynamic framework that students can use throughout their lives to solve challenges.

Recommendations for Future Research

Imagine a world where college students embrace career development as a pathway to flourishing. Wouldn't it be great if everyone could align their interests, skills, and values with meaningful endeavors? How might 100% employee engagement impact the way we work, live, and play? Hopefully, we will continue to leverage positive psychology, creative problem solving, and career development research to foster flourishing. Creative Problem Solving has the potential to function as a powerful positive intervention beyond career development. Perhaps it might even be able to help solve larger, more complex international challenges. What might be all the ways we could leverage the Creative Problem Solving process to cultivate flourishing? Here are a few suggestions to explore this opportunity.

Correlational and empirical studies could investigate the relationship between the Creative Problem Solving Process, well-being, and career development. Considering career development specifically, it would be helpful to conduct randomized controlled studies that compare how students who are trained in Creative Problem Solving advance in career development compared with those who receive traditional career interventions like presentations on how to find a job, write a resume, and network. It would be helpful to investigate how current measures of career development outcomes correlate with well-being. Do any existing measures predict well-being? Studies could also investigate how Creative Problem Solving influences well-being during the career decision-making process. Longitudinal studies could measure how Creative Problem Solving training influences career decision-making self-efficacy (Taylor & Betz, 1983), career resilience, satisfaction with career-related decisions, and well-being in

general. They could also investigate how students trained in Creative Problem Solving perform in their internships and positions after graduation. Other studies could compare how Creative Problem Solving impacts traditional career interventions like counseling and career exploration workshops. Qualitative studies could provide more insight into how Creative Problem Solving helps students clarify and achieve their career goals. Additionally, studies could investigate if Creative Problem Solving increases the social capital that helps students progress their career development. Ultimately, we would want to measure how Creative Problem solving impacts the well-being of students engaging in career decision-making.

To further explore the potential of Creative Problem Solving, we could conduct experiments that measure how it directly contributes to well-being. For example, an empirical study could test how Creative Problem Solving impacts the five elements of PERMA (Seligman, 2011). Additional students could measure how specific Creative Problem Solving tools like brainstorming impact well-being. Other studies could investigate how Creative Problem Solving contributes to participant resilience and decision-making self-efficacy in general. Might Creative Problem Solving training be a protective factor of resilience? It would also be helpful to investigate how Creative Problem Solving impacts the three constructs of meaning: coherence, purpose, and significance (Martela & Steger, 2016).

Additional research could investigate how Creative Problem Solving and positive interventions synergize to produce even greater increases in well-being. For example, how might a combination of the Creative Problem Solving and Appreciative Inquiry processes impact well-being? Would it be helpful to incorporate divergent and convergent thinking guidelines in Appreciative Inquiry initiatives? Similarly, would it be helpful to add the tenets of Appreciative Inquiry into the Creative Problem Solving process? It might be beneficial to list Seligman's

elements of well-being (PERMA) as success criteria to consider in the convergent phases of the Creative Problem Solving process. Additionally, Creative Problem Solving might enhance character strengths positive interventions. One of the most common character strengths interventions involves using a signature strength in a new way every day (Niemiec, 2017). Creative Problem Solving could help individuals explore new ways to apply their character strengths, and help them cultivate creativity as an added bonus.

Overall, Creative Problem Solving is a powerful positive intervention that has potential to cultivate well-being in many domains. Throughout our lives, we will encounter an overwhelming number of challenges and make numerous decisions. Each time we encounter a challenge, we can choose to frame it as a problem or an opportunity. I hope that Creative Problem Solving will inspire new insights that transform people's lives in meaningful ways. This tool empowers us to see new possibilities and create the best versions of ourselves. By leveraging positive, productive, and constructive thought patterns, we can develop habits and behaviors that cultivate communities of creativity and flourishing. How might we all cultivate creativity to bring out the best in ourselves and others?

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